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Updates on the surveillance program on parasites of raccoon dogs and foxes in Denmark 2011-2012

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Abstract:

Raccoon dogs have recently invaded Denmark, which marked concern about potential introduction of parasites to native species. In the same time, a nation-wide surveillance program was initiated to screen red foxes for presence of *Echinococcus multilocularis.* Here, we present the results of that surveillance study, which included analyses of gastrointestinal helminths and *Trichinella* spp. in 99 raccoon dogs and 384 foxes collected from October 2009 to March 2012 in mainland and islands of Denmark. Raccoon dogs and red foxes harbored nine and 13 helminth species, respectively, many of which are potentially zoonotic. While all animals examined were *Trichinella*-free, a fox harbored 20 worms of *E. multilocularis* (0.3%). Parasites of raccoon dogs were mainly rodent-transmitted, while parasites of red foxes were mainly amphibian-transmitted, which may suggest less important role of raccoon dogs in the transmission of *E. multilocularis*. Differences in the prevalence, abundance and intestinal distribution of several parasite species were evident between the two host species. Flukes of *Alaria alata* in raccoon dogs were more prevalent and smaller in size than those recovered from foxes. In raccoon dogs, results of multivariate analysis showed that the abundances of *Mesocestoides* spp., *A. alata* and *Cryptocotyle* spp. were season-associated, while the abundance of *Cryptocotyle* spp. was associated also with the age of hosts. In foxes, regression parameters revealed increased incidence of *Uncinaria stenocephala, A. alata* and *Pygidiopsis summa* in adult foxes, increased incidence of *Toxocara canis, A. alata* and *Mesorchis denticulatus* in mainland compared to islands of Denmark, and increased incidence of *T. canis* and *Cryptocotyle* spp. in male foxes. Many biological factors may have shaped the observed differences between helminths of raccoon dogs and foxes. The results of this study showed the importance of surveillance programs in early discovery and monitoring of zoonotic infections in native and invading animals.